UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 6TH AVENUE
SEATTLE, WASHINGTON 98101

DATE:	See date of Section Chief signature
SUBJECT:	CLEAN AIR ACT INSPECTION REPORT Chevron Willbridge Terminal, Portland, Oregon
FROM:	Daniel Heins, Environmental Scientist Air Toxics Enforcement Section, EPA Region 10
THRU:	Derrick Terada, Acting Section Chief Air Toxics Enforcement Section, EPA Region 10
TO:	File

BASIC INFORMATION

Facility Name: Chevron Willbridge Terminal
Facility Location: 5531 NW Doane Avenue, Portland, OR 97210

Date of Inspection: June 21, 2022

EPA Inspector(s):
1. Daniel Heins, Environmental Scientist

Other Attendees:
1. Shane Partain, HSE Specialist – Chevron
2. Jim Weider, Production Supervisor – Chevron
3. Jerry Henderson, Operations Manager – Chevron
4. George Yun, Air Quality Inspector – Oregon Department of Environmental Quality (DEQ)
5. Chris Moore, Air Quality Inspector – DEQ

Contact Email Address: Sparta@chevron.com

Purpose of Inspection: Tanks inspection, monitoring in support of DEQ inspection

Facility Type: Bulk fuels terminal / gasoline distribution facility

Arrival Time: 09:45
Departure Time: 12:45

Inspection Type: Announced Inspection. This was a DEQ regularly scheduled inspection that Daniel Heins coordinated with DEQ to merge with a planned EPA tanks monitoring inspection.

OPENING CONFERENCE

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☐ Provided Small Business Resource Information Sheet
☒ Small Business Resource Information Sheet not provided. Reason: Not a small business
☒ Provided CBI warning to facility

The following information was obtained verbally from Chevron representatives.

Process Description:
The Chevron Fuels & Lubricants Willbridge Terminal ("the Facility") contains two business units: lubricants and light products. This inspection is exclusively focused on the operations of the light products unit, which contains all fuels terminal operations.

Chevron receives, stores, blends, and/or distributes gasoline, diesel, transmix, ethanol, biodiesel, butane, and fuels additives at the Facility. The Facility receives gasoline and diesel via the Olympic Pipeline. The Facility receives various fuels and lubricant products via marine vessels, particularly vessels coming from the Chevron Richmond Refinery. The Facility has the capacity to receive fuels by rail, but only uses rail for the lubricants unit. The Facility can also receive product via truck. The Facility distributes fuels via its truck rack, marine vessels, and pipeline. The Facility has a vapor recovery unit (VRU) to control vapors from the truck rack and a second VRU controlling vapors from marine loading. Chevron is in the process of interlinking the second VRU to be able to serve as backup to the truck rack. Chevron's dock is also used by Zenith to distribute crude oil, with vapors controlled by Zenith's VRU.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:
Daniel Heins made observations with a FLIR GF320 optical gas imaging camera ("the FLIR"), capable of seeing hydrocarbon emissions plumes. EPA also used a Thermofisher TVA2020 flame ionization device ("the TVA") to measure the total hydrocarbon concentration in parts per million as methane (ppm) from vents or through hatches at the tops of tanks.

Daniel Heins and the DEQ inspectors first went to the VRU. Daniel Heins measured elevated hydrocarbon readings at the outlet of Bed A ("V-200A") and recorded an emissions plume with the FLIR. Chevron stated that the VRU only removes non-methane organics, and that the reading was likely primarily from methane gas passing through the VRU. The continuous emission monitor tracks the concentration of methane and adjusts the non-methane organics concentration.

The monitor display showed methane concentrations from 0.44 to 0.66% when viewed by Daniel Heins.

Daniel Heins and the DEQ inspectors then went through the light products tank farm area. Daniel Heins took TVA readings at the tops of tanks 60, 62, and 45, all containing gasoline Daniel Heins observed significant emissions plumes from tank 48, containing transmix, and then took TVA readings from a hatch on the tank opened to facilitate a reading. Daniel Heins made FLIR observations of tanks 1, 3, 163, and 164 (all containing gasoline), as well as tank 51 (containing ethanol), but did not observe any plumes. No TVA readings were taken at these tanks.

Daniel Heins and the DEQ inspectors went to the marine dock, where a ship was unloading lubricants. Daniel Heins checked the pressure relief valves on the butane tank, and did not detect any elevated readings. Returning to the site office, Daniel Heins noticed a strong smell of petroleum near tank 48 and confirmed with the FLIR camera that it was still venting hydrocarbon vapors.

Photos and/or Videos: were taken during the inspection. See Appendix B.
Field Measurements: were taken during this inspection. See Appendix C.

RECORDS REVIEW

Ahead of the inspection, Daniel Heins requested and reviewed a site map and a list of storage tanks with details of tank product, construction, size, and applicable air regulations.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:
Daniel Heins requested tank levels of selected tanks at the Facility from the time of the inspection.

Concerns:
Daniel Heins noted the significantly elevated hydrocarbon concentrations at Tank 48, and that concentrations would likely be significantly higher towards the bottom of the tank headspace. Daniel Heins noted that this could potentially be an indication of an issue in the performance of the internal floating roof in suppressing emissions and that there is potential that the concentrations may be high enough at the bottom to pose a safety concern.

DIGITAL SIGNATURES

Heins, Daniel

Digitally signed by Heins, Daniel
Date: 2022.07.14 12:15:09 -07'00'

Daniel Heins, Report Author

DERRICK TERADA

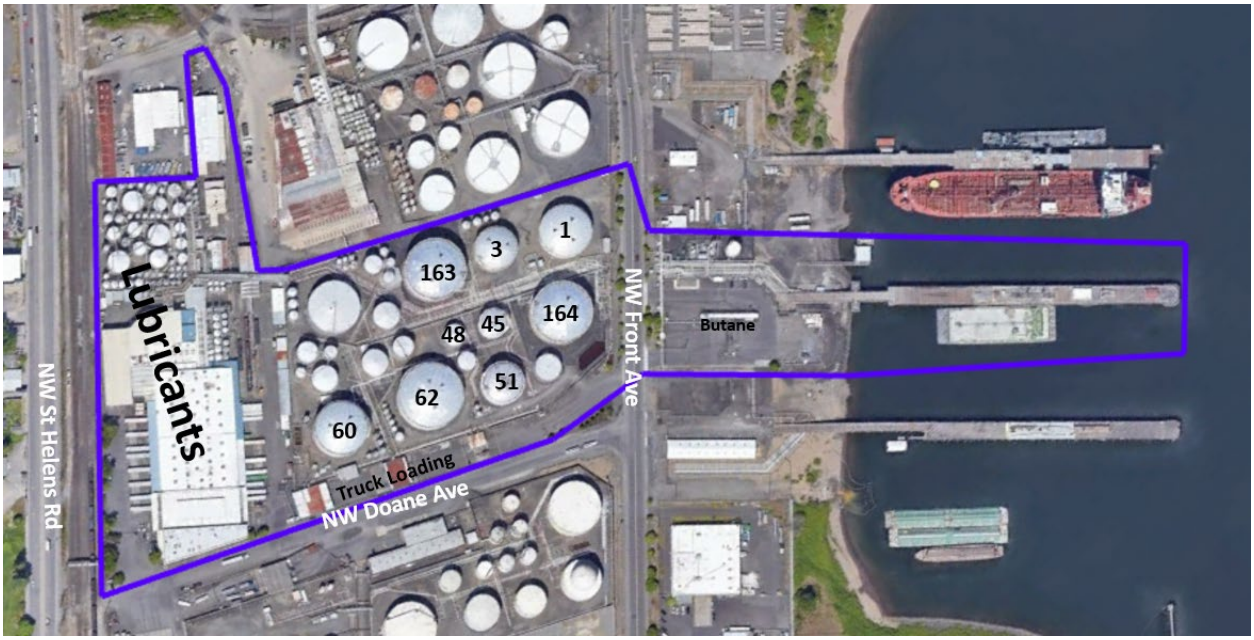
Digitally signed by DERRICK TERADA
Date: 2022.07.18 11:49:04 -07'00'

Derrick Terada, Acting Section Chief

APPENDICES AND ATTACHMENTS

Appendix A: Site Map
Appendix B: Digital Image Log
The files listed in this log are attachments to this report.
Appendix C: Field Measurement Data

APPENDIX A: SITE MAP



Above is a partial map of the Facility. Approximate Facility bounds highlighted in blue. Tanks containing gasoline, ethanol, or transmix are labeled. The Willamette River, on the right of the map, is to the northeast.

APPENDIX B: DIGITAL IMAGE LOG

Inspector Name: Daniel Heins
Archival Record Location: US EPA Sharepoint
Camera type: FLIR GF320 optical gas imaging camera, for detecting hydrocarbon and VOC emissions.

File Name	Date/Time	Tank/Equipment	Description
DC_0668.jpg	6/21/2022 10:41	VRU monitoring screen	Indicates outlet gas methane concentration of 0.66%
MOV_0669.mp4	6/21/2022 10:47	VRU V-200A outlet	Plume out of vent
MOV_0670.mp4	6/21/2022 11:28	Tank 48 (Transmix)	Plume out rim vent, viewed from ground
MOV_0671.mp4	6/21/2022 11:34	Tank 48 (Transmix)	Plume out rim vent, viewed from neighboring tank
MOV_0674.mp4	6/21/2022 11:36	Tank 48 (Transmix)	Plume out rim vent, viewed from neighboring tank
MOV_0675.mp4	6/21/2022 11:44	Tank 48 (Transmix)	Plume out of hatch opened at EPA request

APPENDIX C: FIELD MEASUREMENT DATA

Tank #	Product	TVA PPM	TVA Reading Location	IFR Type	Notes
60	Gasoline	220	center vent	steel annular pontoon	
62	Gasoline	45	hatch	steel annular pontoon	
45	Gasoline	150	hatch	steel annular pontoon	
48	Transmix	2700	hatch	steel annular pontoon	
51	Ethanol	-		steel annual pontoon	Observed with FLIR, nothing of note
1, 3, 163, 164	Gasoline	-		all steel annular pontoon	Observed with FLIR, nothing of note

TVA instrument readings are given in parts per million (ppm) total hydrocarbon, as methane. All TVA reading locations are on the tank roofs.

Readings were additionally taken at the vent outlet of Bed A of the VRU ("V-200A") and ranged from 140 to 2000 ppm.

Calibration and Instrument Information
Daniel Heins used a ThermoFisher Toxic Vapor Analyzer 2020 (TVA2020), designated as TVA A95732. The EPA TVA2020 response time is approximately 4.5 seconds.

	Calibration gas ppm	A95732 ppm
08:30 calibration check	500	497
08:30 calibration check	10000	1.03%
18:15 drift check	500	471
18:15 drift check	10000	9902

EPA calibration gases

Composition	Lot #	Expiration
Air zero grade THC <1 ppm	DBJ-1-24	March 2023
Methane in air 500 ppm	1-167-64	June 2024
Methane in air 10,000 ppm	228894	February 2023